

CLAIMS

1. A face image creation device for creating a first face image in which face parts for creating the first face image are respectively arranged at positions based on a position of a corresponding each of the face parts in a second face image, comprising:
  - a reception unit operable to receive an input of the second face image;
  - a position calculation unit operable to extract each of the face parts from the input second face image and calculate the position of each of the face parts in the second face image;
  - a reference position storage unit storing a reference position of each of the face parts in a reference face image;
  - a default position storage unit storing a default position of each of the face parts for creating the first face image in the first face image; and
  - a position determining unit operable to determine the positions at which the face parts for creating the first face image are arranged, based on a comparison result between the calculated position of each of the face parts in the second face image and the reference position of a corresponding each of the face parts in the reference face image, and a comparison result of a distance between default positions with a distance between reference positions for particular two of the face parts.
2. The face image creation device of Claim 1, wherein the position determining unit includes:
  - a displacement parameter determining subunit operable to determine a horizontal-direction displacement parameter, which is a

distance in a horizontal direction between the calculated position of each of the face parts in the second face image and the reference position of a corresponding each of the face parts, and determine a vertical-direction displacement parameter, which is a ratio of (a) a 5 distance in a vertical direction between the calculated position of one of the face parts and the calculated position of each of remaining face parts to (b) a distance in the vertical direction between the reference position of the one of the face parts and the reference position of the each of the remaining face parts; and

10 a default position displacing subunit operable to determine, as each of the positions at which the face parts for creating the first face image are arranged, a position displaced from the default position of a corresponding each of the face parts, (i) in the horizontal direction, by a distance corresponding to a value obtained by 15 multiplying the determined horizontal-direction displacement parameter of the corresponding each of the face parts by a ratio of a width of a circumscribing rectangle specified based on the default position of each of the face parts to a width of a circumscribing rectangle specified based on the reference position of each of the face parts, and (ii) in the vertical direction, so that a distance in the 20 vertical direction between the default position of the one of the face parts and the default position of the each of the remaining face parts is changed to a distance corresponding to a value obtained by multiplying the distance in the vertical direction between the default positions 25 by the vertical-direction displacement parameter determined for the one of the face parts and the each of the remaining face parts.

3. The face image creation device of one of Claims 1 and 2, wherein

the default position storage unit stores, with respect to each of a plurality of expression styles, a set of the face parts for creating the first face image and the default position of each of the face parts, the reception unit receives a plurality of inputs of a target person's 5 face images with different facial expressions, and the face image creation device further comprising:

an extraction unit operable to extract, from each of the input face images, physical feature quantities of the face parts making up the each of the input face images; and

10 an expression style determining unit operable to select one of the input face images as the second face image, and determine an expression style for the face parts for creating the first face image, based on a comparison result between the physical feature quantities of the face parts making up the second face image and the physical feature 15 quantities of the face parts making up each of remaining input face images, wherein

the position determining unit determines the positions at which the face parts in the determined expression style for creating the first face image are arranged.

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4. The face image creation device of one of Claims 2 and 3, including a face image input subdevice and a face image plot subdevice, wherein the face image input subdevice includes:

the reception unit;

25 the position calculation unit;

the reference position storage unit;

the displacement parameter determining subunit;

a 1st transmission unit operable to transmit the determined

horizontal-direction and vertical-direction displacement parameters to the face image plot subdevice; and

a 1st receiving unit operable to receive the first face image transmitted from the face image plot subdevice, and

5 the face image plot device including:

a 2nd receiving unit operable to receive the determined horizontal-direction and vertical-direction displacement parameters;

the default position storage unit;

the default position displacing subunit;

10 a face image creation unit operable to create the first face image in which each of the face parts for creating the first face image are arranged at the position determined by the default position displacing subunit; and

15 a 2nd transmission unit operable to transmit the created first face image to the face image input subdevice.

5. A face image creation method used in a face image creation device for creating a first face image in which face parts for creating the first face image are respectively arranged at positions based on a 20 position of a corresponding each of the face parts in a second face image, wherein

the face image creation device includes:

a reference position storage unit storing a reference position of each of the face parts in a reference face image; and

25 a default position storage unit storing a default position of each of the face parts for creating the first face image in the first face image, and

the face image creation method comprising steps of:

receiving an input of the second face image;  
extracting each of the face parts from the input second face image  
and calculate the position of each of the face parts in the second face  
image; and

5 determining the positions at which the face parts for creating  
the first face image are arranged, based on a comparison result between  
the calculated position of each of the face parts in the second face  
image and the reference position of a corresponding each of the face  
parts in the reference face image, and a comparison result of a distance  
10 between default positions with a distance between reference positions  
for particular two of the face parts.

6. A program for causing a face image creation device for creating a  
first face image in which face parts for creating the first face image  
15 are respectively arranged at positions based on a position of a  
corresponding each of the face parts in a second face image, to execute  
a face image creation process, wherein

the face image creation device includes:

a reference position storage unit storing a reference position  
20 of each of the face parts in a reference face image; and

a default position storage unit storing a default position of each  
of the face parts for creating the first face image in the first face  
image, and

the face image creation process comprising steps of:

25 receiving an input of the second face image;  
extracting each of the face parts from the input second face image  
and calculate the position of each of the face parts in the second face  
image; and

determining the positions at which the face parts for creating the first face image are arranged, based on a comparison result between the calculated position of each of the face parts in the second face image and the reference position of a corresponding each of the face parts in the reference face image, and a comparison result of a distance between default positions with a distance between reference positions for particular two of the face parts.

7. A computer readable recording medium storing thereon a program for causing a face image creation device for creating a first face image in which face parts for creating the first face image are respectively arranged at positions based on a position of a corresponding each of the face parts in a second face image, to execute a face image creation process, wherein

15 the face image creation device includes:

a reference position storage unit storing a reference position of each of the face parts in a reference face image; and

20 a default position storage unit storing a default position of each of the face parts for creating the first face image in the first face image, and

the face image creation process comprising steps of:

receiving an input of the second face image;

25 extracting each of the face parts from the input second face image and calculate the position of each of the face parts in the second face image; and

determining the positions at which the face parts for creating the first face image are arranged, based on a comparison result between the calculated position of each of the face parts in the second face

image and the reference position of a corresponding each of the face parts in the reference face image, and a comparison result of a distance between default positions with a distance between reference positions for particular two of the face parts.